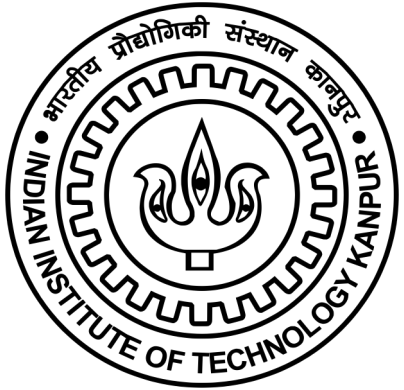
CE 331A: GEOINFORMATICS



Department of Civil Engineering

CE331A Geoinformatics (Surveying)

Thursday (Group 3)

The Holy Grail of Surveying is Whole to Part.

Course Instructors: Dr. Onkar Dixit & Dr. Balaji Devaraju

Group members:-

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200177	Apoorva Jha	apoorvaj20@iitk.ac.in
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ACKNOWLEDGEMENT

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We would like to express our special thanks to our tutor Mr. Ibaad Anwar & Mr. Ashish Katiyar, for their time and efforts provided throughout the course . His useful advice and suggestions were really helpful to us during the project's completion. In this aspect, we are eternally grateful to him.

We would also like to thank all Lab Staff Members & TAs for their constant guidance and support throughout the project.

INTRODUCTION

Group 3 participants mapped the region in and around the IME Building and DOAA canteen as part of the lab project. During the six-week period, the group established control points, measured internal angles for the closed traverse, determined elevation for the established control points, used GNSS to determine global coordinates of the control points, and mapped features of the area to create a full-fledged map of the entire area allotted using the QGIS software.

OBJECTIVES

- To establish a close traverse by establishing the control points such that (i-1)th and (i+1)th control points are visible from the ith control point.
- To measure the side length and interior angles of the close traverse after its establishment.
- To carry out levelling process of our region using the Auto Level.
- To find the global coordinates of our stations using GNSS.
- To map features like trees, buildings, fire hydrants, lamps, etc. around our control points.
- To finally prepare the map of the area using QGIS Software after adjusting the traverse using Bowditch's Rule.

METHODOLOGY

WEEK 1 (RECONNAISSANCE SURVEY)

Performed Reconnaissance Survey of the allotted area to create a close network by establishing a total of seven control points for the entire area creating a close traverse and marked the points using paint for future references.

WEEK 2 (TRAVERSING AND ANGLE MEASUREMENT)

Total Station was used to measure the distance between the already defined control stations (close traverse side lengths) and interior angles between the sides. Found out the local coordinates of the control points and adjusted them using Bowditch Rule.

METHODOLOGY

WEEK 3 (LEVELLING)

Used Auto-level for carrying out the levelling process in the allotted area by using the GI lab elevation as a Bench Mark.

WEEK 4 (GNSS COORDINATES)

Used GNSS receiver (R10/R7/R4) to obtain the global coordinates of the 4 out of the total 7 control points set up and used Similarity transformation for calculating the adjusted global coordinates of the points.

METHODOLOGY

WEEK 5 (FEATURE MAPPING)

Using Total Station, we mapped features like trees, buildings, lamp posts, fire hydrants, manhole, etc. and took contour points.

WEEK 6 (MAPPING)

Exported data from Total Station into csv format and added the data points as layer in QGIS.Provided different colors and symbols for different features according to Survey of Indian standards.Exported the map in print composer of QGIS.

N

SCALE: 1: 500

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THURSDAY GROUP 3

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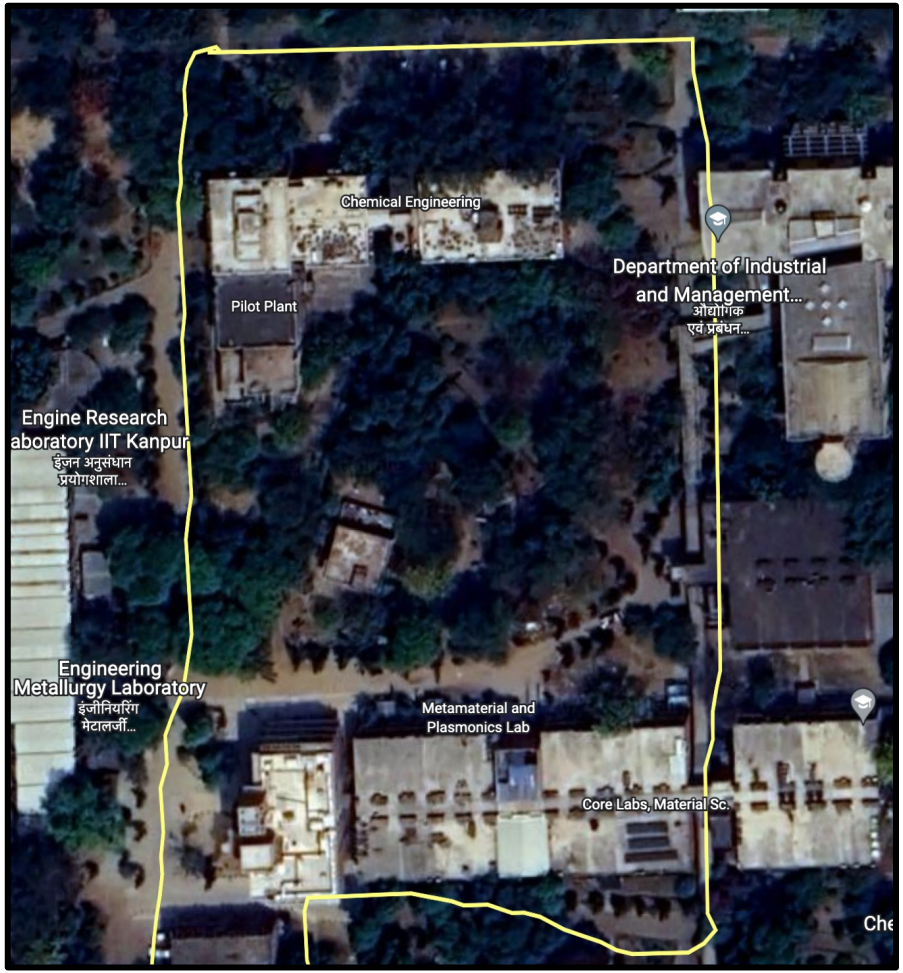
GOOGLE EARTH VIEW OF OUR MAPPING AREA



THURSDAY GROUP 3

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CONCLUSIONS

- Learned all the fundamental of surveying and mapping.
- Learned how to establish control points. We established a control network which has minimum control point and covered the whole area.
- Learned how to use Total station, GNSS and Auto Level.
- QGIS software was used to create the map.

THANK YOU !!